AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A system for synchronizing video indexing between an audio/video (A/V) signal and data for a broadcast program, comprising:

a broadcast data synchronization and transmission system which produces live broadcast program to be broadcasted and extendible markup language (XML) TAG information for the live broadcast program, ~~combining~~ combines the XML TAG information with the produced broadcast program, and ~~transmitting~~ transmits the combined data of a moving picture expert group (MPEG) transport stream to a broadcasting network~~; and~~,

~~a receiving system which receives the MPEG transport stream from the broadcasting network, simultaneously records and playbacks the MPEG transport stream, and reads information required for user video indexing by analyzing the XML TAG received in synchronization with specified sections of the MPEG transport stream~~

wherein the broadcast data synchronization and transmission system includes a contents production and synchronization unit which comprises:

a stream unit which detects group of pictures (GOP) positions of an MPEG stream to be broadcasted on a television; and

a shot/scene unit which sets and marks an XML TAG in the corresponding GOP positions detected by the stream unit.

2. (Cancelled)

3. (Currently Amended) ~~A~~ The system of claim ~~2~~ 1, wherein the contents production and synchronization unit further comprises:

~~a stream unit which detects GOP positions of an MPEG stream to be broadcasted on a TV;~~

~~a shot/scene unit which sets and marks the XML TAG in the corresponding GOP positions detected by the stream unit;~~

an XML unit which synchronizes the marked XML TAG with the MPEG stream to be broadcasted; and

a generation unit which generates and outputs the XML TAG information based upon the result from the XML unit.

4. (Currently Amended) ~~A~~ The system of claim ~~2~~ 1, wherein the broadcast data synchronization and transmission system includes a data transmission unit which comprises:

a data encoder which combines the XML TAG information with the produced broadcast program to be transmitted; and

an MPEG stream transmitter which transmits to the broadcasting network the combined data from the data encoder.

5. (Currently Amended) ~~A~~ The system of claim 1, further comprising:

a receiving system which receives the MPEG transport stream from the broadcasting network, simultaneously records and playbacks the MPEG transport stream, and reads information required for user video indexing by analyzing the XML TAG received in synchronization with specified sections of the MPEG transport stream,

wherein the receiving system comprises:

a simultaneous record/playback unit which simultaneously records and playbacks the MPEG transport stream received from the broadcast data synchronization and transmission system;

a storage unit which stores the MPEG transport stream to be recorded in the simultaneous record/playback unit;

~~a~~ an XML parser unit which analyzes ~~a~~ an XML file among the MPEG transport stream stored in the storage unit;

a media control unit which synchronizes an object file among the MPEG transport stream stored in the storage unit and controls an operation of a video cartridge recorder, where the object file is a combination of an MPEG file and the XML file;

a synchronization decomposition unit which searches for synchronized positions of a specified section of the MPEG stream based on the outputs from the XML parser unit and the media control unit; and

a metadata index unit which systematically stores information output from the [sync] synchronization decomposition unit.

6. (Currently Amended) ~~A~~ The system of claim 5, wherein the simultaneous record/playback unit comprises:

a tuner which tunes the MPEG transport stream received through a broadcasting network;

a demodulator which demodulates a digital broadcasting signal output from the tuner and ~~outputting~~ outputs a live stream;

an encoder which encodes an analog broadcasting signal output from the tuner and outputs transport stream signals;

a data PID filter unit which detects transport stream signals to be stored by filtering the live stream output from the demodulator;

a time stamp header unit which constructs a header by considering transport stream signals other than the transport stream signals detected at the data PID filter unit and by counting figures of a NULL packet, and inserts the header among the considered ~~TS~~ transport stream (TS) signals;

a TS storage unit which stores the transport stream signal produced from the time stamp header unit and the transport stream signal produced from the encoder;

a stamp control unit which controls edition and reading of the transport stream signal stored in the TS storage unit;

a storage control unit which manages information stored in the TS storage unit;

a MUX which selects and outputs one of the TS signals output from the stamp control unit or the demodulator; and

a decoder unit which decodes a signal selected by the MUX.

7. (Currently Amended) ~~A~~ The system of claim 5, wherein the receiving system further comprises:

an EPG unit which controls the metadata index unit such that a user can search information stored in the metadata index unit; and

a TV display unit which displays information stored in the metadata index unit and the broadcasting information read by the simultaneous ~~R/P~~ record/playback unit.

8. (Currently Amended) A system for synchronizing video indexing between an ~~A/V~~ audio/video signal and data for a broadcast program, comprising:

a contents production and synchronization unit which produces live broadcast program to be broadcasted and extendible markup language (XML) TAG information of the broadcast program; and

a data transmission unit which combines the XML TAG information from the contents production and synchronization unit with the produced broadcast program, and transmits the combined data as a moving picture expert group (MPEG) transport stream to a broadcasting network,

wherein the contents production and synchronization unit comprises:

a stream unit which detects group of pictures (GOP) positions of an MPEG stream to be broadcasted on a television; and

a shot/scene unit which sets and marks an XML TAG in the corresponding GOP positions detected by the stream unit.

9. (Currently Amended) ~~A~~ The system of claim 8, wherein the contents production and synchronization unit further comprises:

~~a stream unit which detects GOP positions of an MPEG stream to be broadcasted on a TV;~~

~~a shot/scene unit which sets and marks the XML TAG in the corresponding GOP positions detected by the stream unit;~~

an XML unit which synchronizes the marked XML TAG with the MPEG stream to be broadcasted; and

a generation unit which generates and outputs the XML TAG information based upon the result from the XML unit.

10. (Currently Amended) ~~A~~ The system of claim 8, wherein the data transmission unit comprises:

a data encoder which combines the XML TAG information with the produced broadcast program to be transmitted; and

an MPEG stream transmitter which transmits to the broadcasting network the combined data from the data encoder.

11. (Currently Amended) ~~A~~ The system of claim 8, further comprising a receiving system which receives the MPEG transport stream from the broadcasting network, simultaneously records and playbacks the MPEG transport stream, and reads information

required for user video indexing by analyzing the XML TAG received in synchronization with specified sections of the MPEG transport stream,

wherein the receiving system includes:

a media control unit which synchronizes an object file among the MPEG transport stream stored in a storage unit and controls an operation of a video cartridge recorder, where the object file is a combination of an MPEG file and the XML file;

a synchronization decomposition unit which searches for synchronized positions of a specified section of the MPEG stream based on the outputs from an XML parser unit and the media control unit; and

a metadata index unit which systematically stores information output from the synchronization decomposition unit.

12. (Currently Amended) ~~A~~ The system of claim 11, wherein the receiving system ~~comprises~~ further includes:

a simultaneous record/playback unit which simultaneously records and playbacks the MPEG transport stream received from the broadcast data synchronization and transmission system;

a storage unit which stores the MPEG transport stream to be recorded in the simultaneous record/playback unit; and

~~a~~ an XML parser unit which analyzes ~~a~~ an XML file among the MPEG transport stream stored in the storage unit~~;~~

~~a media control unit which synchronizes an object file among the MPEG transport stream stored in the storage unit and controls an operation of a video cartridge recorder, where the object file is a combination of an MPEG file and the XML file;~~

~~a synchronization decomposition unit which searches for synchronized positions of a specified section of the MPEG stream based on the outputs from the XML parser unit and the media control unit; and~~

~~a metadata index unit which systematically stores information output from the sync decomposition unit~~.

13. (Currently Amended) ~~A~~ The system of claim 12, wherein the simultaneous record/playback unit ~~which simultaneously records and playbacks the MPEG transport stream received from the broadcast data synchronization and transmission system;~~ comprises:

a tuner which tunes the MPEG transport stream received through a broadcasting network;

a demodulator which demodulates a digital broadcasting signal output from the tuner and ~~outputting~~ outputs a live stream;

an encoder which encodes an analog broadcasting signal output from the tuner and outputs transport stream signals;

a data PID filter unit which detects transport stream signals to be stored by filtering the live stream output from the demodulator;

a time stamp header unit which constructs a header by considering transport stream signals other than the transport stream signals detected by the data PID filter unit and by

counting figures of a NULL packet, and inserts the header among the considered transport stream (TS) signals;

a TS storage unit which stores the transport stream signal produced from the time stamp header unit and the transport stream signal produced from the encoder;

a stamp control unit which controls edition and reading of the transport stream signal stored in the TS storage unit;

a storage control unit which manages information stored in the TS storage unit;

a MUX which selects and outputs one of the transport stream signals output from the stamp control unit or the demodulator; and

a decoder unit which decodes a signal selected by the MUX.

14. (Currently Amended) A receiving system in a system for synchronizing video indexing between an ~~A/V~~ audio/video signal and data for a broadcast program, comprising:

a simultaneous record/playback unit which simultaneously records and playbacks a broadcast program received from a broadcasting network;

a storage unit which stores the broadcast program to be recorded in the simultaneous record/playback unit;

~~a XML~~ an extendable markup language (XML) parser unit which analyzes ~~a~~ an XML file in the broadcast program stored in the storage unit;

a media control unit which synchronizes an object file in the broadcast program stored in the storage unit and controls an operation of a video cartridge recorder, where the object file is a combination of ~~an MPEG~~ a moving picture expert group (MPEG) file and the XML file;

a synchronization decomposition unit which searches for synchronized positions of specified section of the broadcast program based on the outputs from the XML parser unit and the media control unit; and

a metadata index unit which systematically stores information output from the ~~sync~~ synchronization decomposition unit.

15. (Currently Amended) ~~A~~ The system of claim 14, ~~wherein the receiving system further comprises~~ further comprising:

an EPG unit which controls the metadata index unit such that a user can search information stored in the metadata index unit; and

a TV display unit which displays information stored in the metadata index unit and the broadcasting information read by the simultaneous ~~R/P~~ record/playback unit.

16. (Currently Amended) ~~A~~ The system of claim 14, wherein the storage unit comprises:

an MPEG file unit which stores a corresponding MPEG stream of the broadcast program from the simultaneous record/playback unit; and

an XML file unit which stores the XML data carrying synchronization information from the simultaneous record/playback unit.

17. (Currently Amended) ~~A~~ The system of claim 16, wherein the synchronization information is time information.

18. (Currently Amended) A method for synchronizing video indexing between an audio/video (A/V) signal and data for a broadcast program, comprising:

producing, at a ~~transmitting unit~~ contents production and synchronization (P/S) unit, live broadcast program to be broadcasted and extendible markup language (XML) TAG information for the live broadcast program; and

combining, at a data transmission unit, the XML TAG information with the produced broadcast program, and transmitting the combined data ~~of MPEG-2~~ in a form of a moving picture expert group (MPEG) transport stream to a broadcasting network,

wherein the contents P/S unit includes a stream unit for detecting group of pictures (GOP) positions of an MPEG stream to be broadcasted on a television, and a shot/scene unit which sets and marks an XML TAG in the corresponding GOP positions detected by the stream unit.

19. (Currently Amended) ~~A~~ The method of claim ~~18~~ 33, further comprising:

~~receiving, at the receiving unit, the MPEG transport stream from the broadcasting network; and~~

~~simultaneously recording and playing back the MPEG-2 transport stream, and reads information required for user video indexing by analyzing the XML TAG received in synchronization with specified sections of the MPEG transport stream~~

synchronizing, at a media control unit, an object file in the broadcast program stored in the storage unit and controlling an operation of a video cartridge recorder, where the object file is a combination of an MPEG file and the XML file;

searching, at a synchronization decomposition unit, for synchronized positions of a specified section of the broadcast program based on the outputs from the XML parser unit and the media control unit; and

systematically storing, at a metadata index unit, information output from the synchronization decomposition unit.

20. (Currently Amended) ~~A~~ The method of claim ~~19~~ 33, wherein simultaneously recording and playing back the MPEG transport stream comprises:

reading [an] the XML TAG information from the MPEG transport stream and detecting a time offset from the XML TAG information;

converting the detected time offset to a file offset;

generating group of pictures (GOP) index files from the MPEG transport stream;

reading a GOP index file and comparing the GOP index file to the file offset;

storing the GOP index file and the XML TAG information if the file offset is equal to the GOP index file, otherwise, reading a next GOP index file and compared to the file offset until a GOP index file which matches the file offset is found for storage with the XML TAG information.

21. (New) A system for synchronizing video indexing between an audio/video (A/V) signal and data for a broadcast program, comprising:

a broadcast data synchronization and transmission system which produces live broadcast program to be broadcasted and an extendible markup language (XML) TAG information for the live broadcast program, combines the XML TAG information with the produced broadcast program, and transmits the combined data of a moving picture expert group (MPEG) transport stream to a broadcasting network,

wherein the broadcast data synchronization and transmission system includes a contents production and synchronization unit which comprises:

an XML unit which synchronizes marked XML TAG with the MPEG stream to be broadcasted; and

a generation unit which generates and outputs the XML TAG information based upon the result from the XML unit.

22. (New) The system of claim 21, wherein the contents production and synchronization unit further includes:

a stream unit which detects a group of pictures (GOP) positions of an MPEG transport stream to be broadcasted on a television; and

a shot/scene unit which sets and marks the XML TAG in the corresponding GOP positions detected by the stream unit.

23. (New) The system of claim 21, wherein the broadcast data synchronization and transmission system further comprises:

a contents production and synchronization unit which produces, in real time, the XML TAG information and produces live broadcast program to be broadcasted; and

a data transmission unit which combines the XML TAG information from the contents production and synchronization unit with the produced broadcast program and transmits the combined data in a form of the MPEG transport stream.

24. (New) A system for synchronizing video indexing between an audio/video (A/V) signal and data for a broadcast program, comprising:

a broadcast data synchronization and transmission system which produces live broadcast program to be broadcasted and extendible markup language (XML) TAG information for the live broadcast program, combines the XML TAG information with the produced broadcast program, and transmits the combined data of a moving picture expert group (MPEG) transport stream to a broadcasting network; and

a receiving system which receives the MPEG transport stream from the broadcasting network, simultaneously records and playbacks the MPEG transport stream, and reads information required for user video indexing by analyzing the XML TAG received in synchronization with specified sections of the MPEG transport stream,

wherein the receiving system includes:

a simultaneous record/playback unit which simultaneously records and playbacks the MPEG transport stream received from the broadcast data synchronization and transmission system;

a storage unit which stores the MPEG transport stream to be recorded in the simultaneous record/playback unit;

an XML parser unit which analyzes an XML file among the MPEG transport stream stored in the storage unit;

a media control unit which synchronizes an object file among the MPEG transport stream stored in the storage unit and controls an operation of a video cartridge recorder, where the object file is a combination of an MPEG file and the XML file;

a synchronization decomposition unit which searches for synchronized positions of a specified section of the MPEG stream based on the outputs from the XML parser unit and the media control unit; and

a metadata index unit which systematically stores information output from the synchronization decomposition unit.

25. (New) A system for synchronizing video indexing between an audio/video (A/V) signal and data for a broadcast program, comprising:

a broadcast data synchronization and transmission system which includes a stream unit which detects group of pictures (GOP) positions of a moving picture expert group (MPEG) stream to be broadcasted on a television, and a shot/scene unit which sets and marks an

extendable markup language (XML) TAG in the corresponding GOP positions detected by the stream unit; and

a receiving system which includes an XML parser unit which analyzes an XML file among the MPEG transport stream stored in a storage unit, a media control unit which synchronizes an object file among the MPEG transport stream stored in the storage unit and controls an operation of a video cartridge recorder, where the object file is a combination of an MPEG file and the XML file, a synchronization decomposition unit which searches for synchronized positions of a specified section of the MPEG stream based on the outputs from the XML parser unit and the media control unit, and a metadata index unit which systematically stores information output from the synchronization decomposition unit.

26. (New) A broadcast data synchronization and transmission system comprising:

a stream unit which detects groups of pictures (GOP) positions of a moving picture expert group (MPEG) stream to be broadcasted on a television; and

a shot/scene unit which sets and marks an extendable markup language (XML) TAG in the corresponding GOP positions detected by the stream unit.

27. (New) The system of claim 26, further comprising:

an XML unit which synchronizes the marked XML TAG with the MPEG stream to be broadcasted; and

a generation unit which generates and outputs the XML TAG information based upon the result from the XML unit.

28. (New) The system of claim 26, wherein the broadcast data synchronization and transmission system produces live broadcast program to be broadcasted and XML TAG information for the live broadcast program, combines the XML TAG information with the produced broadcast program, and transmits the combined data of the MPEG transport stream to a broadcasting network.

29. (New) A receiving system comprising:

an extendable markup language (XML) parser unit which analyzes an XML file among a moving picture expert group (MPEG) transport stream stored in a storage unit;

a media control unit which synchronizes an object file among the MPEG transport stream stored in the storage unit and controls an operation of a video cartridge recorder, where the object file is a combination of an MPEG file and the XML file;

a synchronization decomposition unit which searches for synchronized positions of specified section of the MPEG stream based on the outputs from the XML parser unit and the media control unit; and

a metadata index unit which systematically stores information output from the synchronization decomposition unit.

30. (New) The system of claim 29, further comprising:

a simultaneous record/playback unit which simultaneously records and playbacks the MPEG transport stream received from a broadcast data synchronization and transmission system; and

the storage unit which stores the MPEG transport stream to be recorded in the simultaneous record/playback unit.

31. (New) The system of claim 29, wherein the receiving system receives the MPEG transport stream from the broadcasting network, simultaneously records and playbacks the MPEG transport stream, and reads information required for user video indexing by analyzing the XML TAG received in synchronization with specified sections of the MPEG transport stream.

32. (New) The method of claim 18, further comprising:

synchronizing, at an XML unit, the marked XML TAG with the MPEG stream to be broadcasted; and

generating and outputting, at a generation unit, the XML TAG information based upon the result from the XML unit.

33. (New) The method of claim 18, further comprising:

simultaneously recording and playing back, at a simultaneous record/playback unit, the MPEG transport stream received from the data transmission unit;

storing, at a storage unit, the broadcast program to be recorded in the simultaneous record/playback unit; and

analyzing, at an XML parser unit, an XML file in the broadcast program stored in the storage unit.